A Study on Facilitating Social Signaling Using Paired Devices with Visual and Haptic Cues

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ABSTRACT

There are several benefits that humans obtain from social interaction as it was found to be related to individuals well-being. A high degree of these positive effects comes from being able to recognize and convey the intention to communicate. Social signals are observable behavioral cues used during the exchange through social interaction, and they convey the intention to communicate.This research proposes to mediate human-human communication using paired devices that deliver visual and haptic cues. These cues are used with the role of social signals in scenarios where the available social information is limited. This approach was evaluated on two different communication scenarios with populations that might benefit from the characteristics of the proposed devices. One application is for remote communication scenarios, based on the assumption that the physical embodiment and touch-based cues can complement the affective social signaling of individuals trying to communicate from different places. Another application involves individuals with Autism Spectrum Disorder, using the proposed devices to mediate and describe the exchange in turn-taking interventions, using the cues from the devices as a guide. The methodology of this research involved: 1) Select target users that, based on literature review, could benefit from this approach, 2) Design and implement solutions involving paired devices for facilitating social signals, 3) Performance evaluation: to explore the capabilities of the devices for sensing and conveying cues, and 4) User study: to understand the role of the cues and their effect on the user. At the end of this study it is discussed if the proposed visual and haptic cues delivered by paired devices worked as social signals, and what was the effect these cues have on human communication. Based on this, different parameters that condition the effect of this approach are described. This new interaction setting comes together with different questions, especially considering that 1) "the behavior of the user" is different from "the behavior detected by the sensors" and 2) the decoded message representing a human behavior is made only with simple visual and haptic cues.